



US005100779A

United States Patent [19][11] **Patent Number:** **5,100,779****Watkins**[45] **Date of Patent:** **Mar. 31, 1992****[54] METHOD FOR DETERMINING FUNCTION OF A UNIQUE CYTOCHROME P-450 ACTIVITY****[76] Inventor:** **Paul B. Watkins**, 40 Barton North, Ann Arbor, Mich. 48105**[21] Appl. No.:** **520,115****[22] Filed:** **May 4, 1990****Related U.S. Application Data****[63]** Continuation-in-part of Ser. No. 253,196, Oct. 4, 1988, abandoned.**[51] Int. Cl.⁵** **C12Q 1/26; A61K 49/00; G01N 31/00; G01N 33/48****[52] U.S. Cl.** **435/25; 435/4; 435/25; 424/9; 436/133; 436/56; 436/57; 436/500****[58] Field of Search** **424/9; 435/19, 4, 25; 436/133, 171, 56, 57, 900; 250/343; 356/51****[56] References Cited****PUBLICATIONS**Bircher et al (1981) Exhalation of Isotopic CO₂, Methods in Enzymology 77:3-9.

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A method for determining the function of a unique cytochrome activity of the type which uniquely catalyses the N-demethylation of erythromycin in a patient's body, the method including the steps of ingesting a known quantity of a N-methyl carbon labeled erythromycin solution, the N-methyl carbon demethylated from the erythromycin being metabolized to an exhaled carbon labeled metabolite. A sample of exhaled breath containing a known amount of exhaled carbon metabolite is collected at a known interval of time after ingestion of the erythromycin solution. The quantity of labeled carbon metabolite is detected in the exhaled sample to determine the rate of labeled carbon elimination after the known time interval as an indication of the unique cytochrome function.

7 Claims, 6 Drawing Sheets